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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/640,582	08/17/2000	Arnd Baumann	205970	4666

23460 7590 01/24/2005

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EXAMINER	
LYLES, JOHNALYN D	

ART UNIT	PAPER NUMBER
1647	

DATE MAILED: 01/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/640,582	BAUMANN ET AL.	
	Examiner	Art Unit	
	Johnalyn Lyles	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3,12-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3,12-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *3,12-18* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The Examiner of U.S. Patent application SN 09/640,582 has changed. In order to expedite the correlation of papers with the application, please direct all future correspondence to Examiner Lyles, Technology Center 1600, Art Unit 1647.

2. The amendment filed 03/04/2003 has been entered into the record and has been fully considered. Claims 1-2, 4-11 and 19-46 have been cancelled. Claims 3 and 12-18 are pending.

3. The text of Title 35 of the U.S. Code not reiterated herein can be found in the previous office action.

4. As a result of Applicants amendment, the examiner has withdrawn all rejections not reiterated herein.

5. Applicant is advised of possible benefits under 35 U.S.C. 119(a)-(d), wherein an application for patent filed in the United States may be entitled to the benefit of the filing date of a prior application filed in a foreign country.

6. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. However, the priority papers are noted to be in German.

7. Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119(a)-(d) prior to declaration of an interference, a translation of the foreign application should be submitted under 37 CFR 1.55 in reply to this action. For the purpose of prior art, the effective filing date of claims 3 and 12-18 is 2-12-99. The art rejections set forth in this Action are noted

to be intervening. A translation of the priority document would be required to perfect priority over the intervening reference.

Claim Objections

Claims 12, 13, 14 and 15 are objected to because of the following informalities: the claims encompass non-elected subject matter. Specifically, the claims encompass non-elected SEQ ID NOs: 2, 3, 4, 5, and 12. The elected invention reads on SEQ ID NO: 1. Appropriate correction is required.

Rejections Maintained

Claim Rejections - 35 USC § 101 and § 112, First Paragraph

Claims 3, and 12-18 are rejected under 35 U.S.C. 101 because the claimed invention is **not supported by either a specific and substantial asserted utility or a well-established utility.**

The claims are directed to an isolated or purified nucleic acid comprising the nucleotide sequence of SEQ ID NO: 1 or a fragment thereof of at least six nucleotides, a nucleic acid that is at least 80% or 90% identical to the isolated or purified nucleic acid of SEQ ID NO: 1, a nucleic acid that hybridizes under low stringency conditions with SEQ ID NO: 1, a vector comprising the nucleic acid, a host cell comprising the vector, and a composition comprising the nucleic acid and a carrier therefor. Specifically, the claims are directed to isolated or purified nucleic acids corresponding to SEQ ID NO: 1, comprising a partial sequence of the I_h channel from human thalamus tissue (page 37). The invention relates to the use of the sequence in a screening and/or diagnosing methods and treatment and/or prophylaxis or cardiovascular disorders, disturbances of consciousness as well as pain states (page 13).

The specification discloses I_h channels are important targets for neurotransmitters and messenger systems and play an important role in the control of cellular electrical activities (page 3). I_h channels also participate in the pacemaker function in cardiac muscles. After hyperpolarization, the I_h current slowly activates in a voltage range encompassing that of the diastolic depolarization (page 5, 1st paragraph), which is responsible for the initiation of the rhythmic behavior, characterizing action potentials of the sinus node and other spontaneously active cardiocytes (page 4, 2nd paragraph), and taking part in the control of the heartbeat frequency (page 4, 3rd paragraph).

Applicant asserts that the nucleic acids can be used in screening and diagnostic methods. However, the asserted uses do not meet the requirement of 35 U.S.C. § 101 regarding utility, namely, that the asserted utility be specific and substantial.

Applicant asserts that the nucleic acids can be used in screening methods, particularly ***to test the effect of substances on ion channels*** and to determine substances that influence the channel. This asserted utility is not specific or substantial. All nucleic acids can be used in some combination in screening assays; since no particulars of screening with the nucleic acid sequences are disclosed in the instant specification, this utility is not specific and would be applicable to the general class. Neither the specification nor the art discloses a specific or substantial interpretation of the results of such screening method. Furthermore, using the nucleic acids to express the channel in a host and then, testing substances on the channel preparations by measuring activity merely rely on the inherent properties of the nucleic acid to express the protein. There is no activity disclosed for the partial sequences and there is no disclosure of methods for assessing or allowing for activity to be measured. Therefore, the disclosed use of

the nucleic acids in screening methods is not substantial and the nucleic acids merely constitute research reagents for further experimentation to discover a "real-world" use of the nucleic acids and encoded protein.

Applicant asserts the nucleic acids can be used to ***diagnose cardiovascular disorders*** by contacting a part of the claimed nucleic acid with nucleic acids isolated from a patient and detecting the signal so as to determine the presence and/or absence of an ion channel nucleic acid sequence and detect mutations in the ion channel. Applicant also asserts use in methods, particularly for ***recognizing cardiovascular disorders and treatment and/or prophylaxis of cardiovascular disorders*** due to faulty control of the sinus node, disturbances of consciousness due to malfunction in cortico-thalamic neurons, and treatment of pain states and use ***in gene therapy of a patient in which the ion channel is no longer operative***. Applicant argues the utilities are specific and substantial; however, neither the specification nor the art of record disclose a relationship between the nucleic acids and a disease or any disorder treatable by the claimed nucleic acids or polypeptides encoded by them. Similarly, neither the specification nor the art of record disclose any instances where blocking any effects of the claimed nucleic acids or polypeptides encoded by them reduces the effect of a disease state. Thus, the utility is not specific for cardiovascular disease. The utility is not substantial because one of ordinary skill in the art would be required to conduct further experimentation to establish a nexus between the disclosed nucleic acids and any disease and to identify or reasonably confirm a "real world" context of use. Diagnosing and treating a disease or condition would require further research to correlate the claimed nucleic acids to the disease, especially when the complete sequence of the claimed invention is not known.

In summary, since neither the specification nor the art of record disclose any activities or properties that would constitute a specific, "real world" context of use for the claimed nucleic acids or the polypeptides encoded by them, further experimentation is necessary to attribute a utility to the claimed nucleic acids and encoded polypeptides. Specifically, the specification does not disclose nor does the prior art provide any activity or a biological role for the claimed nucleic acids or encoded proteins or any disease states directly associated with the nucleic acids or encoded proteins dysfunction. There is no evidence that substances identified from screening methods that influence the channel would be useful for any disease or a significance of any such results. The specification does not disclose the critical structure of the invention required for functionality. The claimed nucleic acid is incomplete and does not encode a complete polypeptide. Therefore, the asserted utilities are not specific and substantial or well-established utilities for the claimed nucleic acids for all of the reasons set forth above.

Claims 3, and 12-18 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention. Due to the large quantity of experimentation necessary to establish a nexus between the claimed nucleic acids and any disease, the lack of direction/guidance presented in the specification regarding using the claimed nucleic acids in screening and diagnostic methods or treatment of any disease, the absence of working examples directed to same, the complex nature of the invention, the state of the prior art which established the unpredictability of I_h ion channels, which contribute to a wide range of physiological functions, and the breadth of the claims which fail to recite functional limitations,

undue experimentation would be required of the skilled artisan to make and/or use the claimed invention in its full scope.

Claim Rejections - 35 USC § 112, First paragraph

Claims 3, and 12-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the **written description requirement**. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims are drawn to isolated or purified nucleic acids which codes for the I_h ion channel or part thereof, said nucleic acids

a) are of human origin, comprising the nucleotide sequence of SEQ ID NO: 1 or a fragment thereof of at least six nucleotides

b) hybridize under low or high stringency to the nucleic acid of SEQ ID NO: 1, and

c) are at least 80% or 90% identical to the nucleic acid of SEQ ID NO: 1

d) a vector containing said nucleic acid,

e) a host cell containing said vector, and

f) a composition comprising the nucleic acid of SEQ ID NO: 1 or a fragment thereof of at least six nucleotides.

The specification discloses the nucleic acid of SEQ ID NO: 1 is a partial polynucleotide sequence of an I_h ion channel from human thalamus tissue (page 37). The claims, as written, however, encompass polynucleotides, which vary substantially in length and also in nucleotide

composition. The broadly claimed genus encompasses functional ion channel nucleic acids, genes, chimeric constructs, fusion constructs and variants thereof. The instant disclosure of a single species of nucleic acid does not adequately describe the scope of the claimed genus, which encompasses a substantial variety of subgenera including full-length genes. The instant specification fails to provide sufficient descriptive information including the conserved regions, which are critical to the structure and function of the genus claimed. The specification proposes to discover other members of the genus by using hybridization techniques. There is no description, however, of the sites at which variability may be tolerated and there is no information regarding the relation of structure to function. The prior art does not provide compensatory structural or correlative teachings sufficient to enable one of skill to isolate and identify the nucleic acids encompassed or identifying characteristics of the instant nucleic acids such that one of skill would be able to predictably identify the encompassed molecules as being identical to those claimed. Since the disclosure fails to describe the common attributes or characteristics that identify members of the genus and the genus is highly variant, the disclosure of specific nucleotide sequences and the ability to screen is insufficient to describe the genus. The critical feature of the invention required for function is not disclosed. One of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe the genus as broadly claimed.

A genus claim may be supported by a representative number of species as set forth in Regents of the University of California v Eli Lilly & Co, 119F3d 1559, 1569, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997), which states:

"To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the

inventor invented the claimed invention". Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (1997); In re Gosteli, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1980) ("[T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed.") Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." Lockwood, 107 F.3d 1565, 1572, 41 USPQ2d at 1966.

An adequate written description of a DNA, such as the cDNA of the recombinant plasmids and microorganisms of the '525 patent, "requires a precise definition, such as by structure, formula, chemical name, or physical properties," not a mere wish or plan for obtaining the claimed chemical invention. Fiers v. Revel, 984 F.2d 1164, 1171, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993). Accordingly, "an adequate written description of a DNA requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the DNA itself." Id at 1170, 25 USPQ2d at 1606."

A description of a genus may only be achieved by means of a recitation of a representative number of species, defined by specific structure and/or function, falling within the scope of the genus, or of a recitation of structural features common to the genus, which features constitute a substantial portion of the genus.

New Claim Rejections

Claim Rejections - 35 USC § 112, First paragraph

If utility should be found, claims 3 and 12-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not reasonably provide enablement for the use of sequences at least 80% identical, at least 90% identical, or fragments thereof of at least six nucleotides (SEQ ID NO: 1). In the instant case, if utility should be found claims 3, 12 and 13 and dependent claims 16-18 are not enabled for use of nucleic acids of SEQ ID NO: 1 as recited in the claims. The specification does not enable the broad scope of the claims, which encompasses nucleic acids, which vary substantially in length and also in nucleotide composition, including a multitude of fragments of SEQ ID NO: 1. Many of the nucleic acids that are at least 80% or 90% identical to SEQ ID NO: 1 may encode nonfunctional polypeptides or unrelated polypeptides, the specification does not disclose how to use said nonfunctional or unrelated compounds. Ion channels that show sequence homology, and even I_h ion channels that are homologous have diverse and often unrelated functions. For example, the BCNG (brain cyclic nucleotide gated) genes code for CNS and cardiac pacemaker channels. Although the channels share sequence similarity, as well as sequence homology with other voltage-gated K+ channels, the channels have different functions. In sinoatrial node cells of the heart, pacemaker channels function in rhythmic firing and beating of the atria and ventricles; whereas in the brain, pacemaker channels in thalamic relay neurons regulate arousal during the sleep wake cycle and in brainstem nuclei contribute to respiratory rhythms (Santoro *et. al. Cell* 93:717-729, 1998). Further, there is no disclosure of the critical feature of the invention required for function. The specification provides essentially no guidance as to which of the possible nucleic acid sequences is likely to retain functionality as there is no disclosed function of the claimed nucleic acids. Applicant has not provided sufficient guidance to enable one skilled in the art to make and use the claimed nucleic acid sequences in a manner reasonably correlated with the scope of the

claims. The scope of the claims must bear a reasonable correlation with the scope of enablement (In re Fisher, 166 USPQ 19 24 (CCPA 1970)). Without such guidance, the changes which can be made and still maintain activity/utility is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See Ex parte Forman, 230 USPQ 546 (Bd. Pat. App. & Int. 1986). Thus, the skilled artisan cannot readily make and use the claimed sequences without further undue experimentation. The claims drawn to vector comprising claimed isolated nucleic acid, host cell containing said vector and composition comprising claimed nucleic acid are not enabled for these reasons.

Furthermore, if utility should be found, claim 14 and dependent claim 15 are not enabled for a nucleic acid characterized in that the nucleic acid hybridizes under low stringent conditions with SEQ ID NO: 1. The claims encompass an unduly broad number of compounds; the broadly claimed genus encompasses functional ion channel nucleic acids, genes, chimeric constructs, fusion constructs and variants thereof. Further, many of the nucleic acids isolated by hybridization to the nucleic acid of SEQ ID NO: 1 are unrelated to the claimed invention and would encode unrelated or non-functional proteins. The functionality of the nucleic acids encompassed by the claims is not disclosed. Neither the specification nor the prior art discloses that the nucleic acid claimed even encodes a functional protein. Clearly, a disclosed partial polynucleotide sequence does not support claims to the nucleic acid hybridizing to the same, given the lack of guidance regarding what sequences would hybridize specifically to the nucleic acid of SEQ ID NO: 1, and not other, related sequences. Applicant has not disclosed how to use the unrelated nucleic acids or those encoding non-functional proteins. Thus, one of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of

species to enable the genus as broadly claimed. Due to the large quantity of experimentation necessary to identify the nucleic acids with the structural and functional features of the instant invention, the lack of direction/guidance presented in the specification regarding the identification, purification, isolation and characterization of said nucleic acids, the unpredictability of the nucleic acids to encode functional ion channels, and the breadth of the claims which fail to recite structural and functional limitations, undue experimentation would be required of the skilled artisan to make and/or use the claimed invention in its full scope.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 3-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Santoro *et. al.* (PNAS. December 1997, 94:14815-14820) as evidenced by Accession No: AF064877 (See attached alignment). Santoro *et. al.* discloses an isolated novel cDNA for a cyclic nucleotide-gated channel (See title). The isolated nucleic acid disclosed is at least 80% and at least 90% identical to the SEQ ID NO: 1 (See attached alignment). The sequence disclosed is also a fragment thereof of at least six nucleotides of SEQ ID NO: 1. The disclosed sequence would inherently hybridize under the claimed stringency conditions with SEQ ID NO: 1 as evidenced by the hybridization conditions disclosed (See pages 14815 and 14816, column 1). Furthermore,

the skilled artisan recognizes that hybridization is a property dependent upon the structural nucleotides of the hybridizing sequences, the G+C content, the length of the molecules and the temperature and salt hybridization conditions; see for example, Jenkins et al., PCR Methods and Applications, S77-82, 1994. Thus, the disclosed sequence, which is at least 90% identical, has a similar G+C content with a 360 bp identical sequence in the middle, and similar T_m would therefore hybridize under the low stringency and stringent conditions of claim 13 and claim 14, respectively. Furthermore, Santoro *et. al.* teaches a host cell and a vector comprising the cDNA of claim 3, which includes a fragment thereof of at least six nucleotides(pg 14815-6). The reference further discloses a cDNA, which encodes for a member of the voltage gated K channel family from mouse brain that is a fragment thereof of at least six nucleotides of SEQ ID NO: 1. The fragments are in SSC buffer in aqueous solution in the hybridization assays. Because the claims are drawn to a fragment thereof of at least six nucleotides, a sequence at least 80% and 90% identical to an isolated nucleic acid of SEQ ID NO: 1, a vector and host cell, and a composition comprising the nucleic acid and a carrier, the reference teachings of the sequence and fragments in the buffer solution, and the host cell and vector anticipate the claimed invention.

Claims 3 and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Warren *et. al.* (US Patent No. 5849870, issued 12/15/98, with effective filing date 06/05/95). Warren *et. al.* discloses a fragment of at least six nucleotides of SEQ ID NO: 1 (See, for example, column 137, line 1, nucleotides GAAGAAG of SEQ ID NO: 30). The patent contemplates that a gene encoding the pesticide may be introduced via a suitable vector into a microbial host (column 12,

lines 62-64). The patent further discloses the compounds of the invention can be used in herbicides, insecticides, fungicides, or mixtures of these preparations together with further agriculturally acceptable carriers (column 16, lines 44-54). Because the claims are drawn to a fragment thereof of at least six nucleotides of SEQ ID NO: 1, a vector comprising the nucleic acid of claim 3, a host cell comprising the vector, and a composition comprising the nucleic acid of claim 3 and a carrier therefor, the reference teachings anticipate the claimed invention.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 3-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Kandel *et. al.* (US Pat. No. 6,703,485, issued March 9, 2004, with effective filing date, 5/28/98). Kandel *et. al.* discloses a sequence at least 80% and at least 90% identical to the isolated or purified nucleic acid of SEQ ID NO: 1 (See alignment for SEQ ID NO: 40. Note SEQ ID NO: 40 corresponds to the alignment for Accession No. AF064877, as noted column 63, line 2). The patent further discloses a cDNA that is a fragment thereof of at least six nucleotides of SEQ ID NO: 1 (SEQ ID NO: 40). The sequence would inherently hybridize under the claimed stringency conditions with SEQ ID NO: 1. As noted above, the skilled artisan recognizes that hybridization is a property dependent upon the structural nucleotides of the hybridizing sequences, the G+C content, the

length of the molecules and the temperature and salt hybridization conditions; see for example, Jenkins et al., PCR Methods and Applications, S77-82, 1994. Thus, the disclosed sequence, which is at least 90% identical, has a similar G+C content with a 360 bp identical sequence in the middle, and similar T_m would therefore hybridize under the low stringency and stringent conditions of claim 13 and claim 14, respectively. Furthermore, Kandel *et. al.* teaches a host cell and a vector comprising the cDNA of claim 3, which includes a fragment thereof of at least six nucleotides (column 9, lines 4-11). Kandel *et. al.* also describes the fragments in an ExpressHyb solution in the hybridization assays (column 33, line 44-5). Because the claims are drawn to a fragment thereof of at least six nucleotides, a sequence at least 80% and at least 90% identical to an isolated nucleic acid of SEQ ID NO: 1, a vector and host cell, and a composition comprising the nucleic acid and the carrier, the reference teachings anticipate the claimed invention.

Advisory Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johnalyn Lyles whose telephone number is 571-272-3433. The examiner can normally be reached on M-F 8 am - 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda Brumback can be reached on 571-272-0961. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jdl

SHARON L. TURNER, PH.D.
PATENT EXAMINER
1-19-05